DESIGN CONSULTANT CRITERIA

State of Hawaii
Department of Accounting and General Services
Public Works Division

Design Consultant Criteria

- OVERVIEW
- TECHNICAL REQUIREMENTS
- CONTRACT CONDITIONS

- Notice, Adoption
- Use & Terms
- Sources
- Purpose
- Electronic Version CD
- PWD Website
- Updates
- Organization

- Notice, Adoption
 - -September 30, 2003
- Use & Terms
 - -For DAGS Projects Only
 - -One Copy Per Consultant
 - -Restricted Distribution

- Sources
 - -Architect- Engineer Guide
 - -Policies and Procedures
 Governing Design Consultant
 Contracts
 - Repairs and Maintenance Project
 Guidelines

- Sources (Cont.)
 - -Guide Specifications and Technical Memorandums
 - -Supplement to Policies and Procedures Governing Design Consultant Contracts to Incorporate Art in Public Places Program
 - -General Conditions AG2 GC(1/01)

- Purpose
 - -Consolidate information
 - -To preclude problems
 - -Provide an organizational format
 - -Make researching items easier
 - -Accomplish easier updates

- Electronic Version CD
 - No hardcopy to be distributed
 - Entire manual in .pdf format linked to TOC
 - -Technical Guides and User Guides in .doc format
 - -Version number v03-05 or v03-06

- DAGS PWD Website
 - -PWD Professional Services link
 - -Password required to access site

- Updates
 - -Scheduled
 - -Posted
 - -Downloads
 - -Consultant's Requirements

- Organization
 - -Contract Conditions
 - –Design Criteria
 - -Technical Guides
 - -User Guides

Questions

- DESIGN CRITERIA (DC)
- TECHNICAL GUIDES (TG)
- USER GUIDES (UG)

- DESIGN CRITERIA (DC)
 - -Article 1 General
 - -Article 2 Planning and Design by Discipline
 - -Article 3 Research, Studies

DESIGN CRITERIA (DC)

2.1 Civil

2.1.3 Accessibility

- 2.1.3.1 Refer to DC 2.15 Accessibility for general design requirements.
- 2.1.3.2 Calculate spot elevations for all exterior accessible routes on vehicular pavement and pedestrian walkways to assure compliance with ADAAG or ANSI as appropriate, and to assure adequate surface drainage. Indicate the spot elevations on a plan of sufficient scale to clearly define the design intent.
- 2.1.3.3 Where slopes or cross-slopes of a maximum 2% are allowed by ADAAG or ANSI, the design slopes should be not less than 1.5% to help prevent ponding water.
- 2.1.3.4 Include the following note on the Civil Drawings: "Establish finish elevations for all utility structures, frames and covers within accessible routes such that they will be flush with the surface of the adjacent accessible route when work is completed. The final finish elevation of any such item shall not exceed ¼" above or below the adjacent finish elevation of the accessible route at any point. Variations in excess of this amount will be considered defective work, and shall be corrected."

2.15 Accessibility

- 2.15.1 Construction Tolerances:
- 2.15.1.1 To provide some tolerances for the construction process, where ranges, maximum, or minimum dimensions are required by ADAAG or ANSI (as required by the project), do not dimension to exactly those maximums or minimums, or to either of the two limits of a range. Dimension in between the range limits, or less than the maximum, or more than the minimum, while still satisfying all other code and functionality criteria.

- 2.3.1 Design and Coordination of Structural Supports for Equipment.
- 2.3.1.1 Problem: When designing for specific product/equipment system with its weight, access and support criteria; other acceptable products/equipment/system may have different design features that require changes to accommodate. In cases where substitutions by Vendors are accepted by DAGS and structural changes necessary are not reviewed or incorporated, DAGS may be required to pay cost for the necessary change.
- 2.3.1.2 Solution Consultant shall include on the drawings, design and limitations used for equipment supports, sizes, weight capacity and access requirements. Provide a design that accommodates all the products/equipment/system specified; or if using a performance specification design to meet at least three of the most common products/equipment/system that meet the specifications.
- 2.3.1.3 Include a statement on the drawings that requires the Contractor to include in its bid or proposal, any costs to change the structural supports or architectural, electrical, mechanical or other items and surrounding conditions (or design if necessary) that are shown in the Drawings and Specifications to accommodate changes necessary for the product/equipment system to be used in the Project.

2.5.1 Piping and Equipment: Do not locate piping and other water containing equipment directly over electrical equipment, panel boxes, controls, switches and other energized electrical devices. The Electric Code[NEC 1999 110-26 (f)(1)(a)] does not allow placement of piping, equipment and other plumbing hardware over electrical panels, switchboards and other panels under its jurisdiction. Do not route piping and do not locate fire protection equipment in electric rooms, electric vaults and electric closets. Designer shall provide coordinated drawings to DAGS prior to final drawings. Specifications shall require contractor to submit coordination drawings showing all existing conditions and new work.

- **2.4.1 Projecting Objects:** Ensure compliance with ADAAG for projecting objects along an accessible path. Reference Technical Guide TG B2020.01.
- 2.4.2 Protection of Metals: Be aware of the severe corrosion problems we have experienced on weather exposed metals, on tall facilities such as athletic field light fixtures and frames, on metal buildings and on metal parts exposed to salt-laden moist air which are frequently exposed to salt spray in the atmosphere [e.g., such as at the Oahu North Shore; Kapaa, Kauai;

Kahului Maui Community College; etc.].

- 2.4.2.1 Consider specifying special heavy-duty corrosion-resistant finishes (if available), corrosion-resistant materials (such as Type 316 stainless steel), or appropriate industrial quality corrosion-resistant maintenance coatings.
- 2.4.2.2 Additionally, design and detail light pole bases and the footing pedestals so that rainwater and moisture will not accumulate, on, in or under the pole base.
- 2.4.3 Masonry:
- OLD
 Decorative Veneer Work: Using lava or moss rock, stone, tile, etc. will not be allowed. Such materials, when used for an essential, functional and necessary purpose and where economical in cost and maintenance may be used upon the approval of the Public Works Administrator.

- **2.8.1 Stair Lighting:** Lighting must be accessible by maintenance personnel by stepladder. Lamp type and wattage shall be selected to avoid excessive brightness during re-lamping.
- 2.8.2 Conduit Distribution and Routing
- **2.8.2.1** Minimize conduit penetrations through on-grade interior concrete slabs. Route conduits from ceiling (top) down.
- 2.8.2.2 At upper floors, eliminate slab embedded conduits.
- 2.8.3 Accessibility
- 2.8.3.1 Refer to DC 2.15 Accessibility for general design requirements.
- 2.8.3.2 Include the following note on the Electrical Drawings:

"Establish finish elevations for all exterior utility structures, frames and covers within accessible routes such that they will be flush with the surface of the adjacent accessible route when work is completed. The final finish elevation of any such item shall not exceed ¼" above or below the adjacent finish elevation of the accessible route at any point. Variations in excess of this amount will be considered defective work, and shall be corrected."

- TECHNICAL GUIDES (TG)
 - Building Components (Uniformat)
 - Materials (Masterformat)

- TG Building Components (Uniformat)
 - A. Substructure
 - B. Shell
 - C. Interiors
 - D. Services
 - E. Equipment and Furnishing
 - F. Special Construction and Demolition
 - G. Building Site Work
 - Z. General

- Article 1 Doors and Hardware: Due to recurring maintenance and security problems involving door hardware,-address the following items:
- 1.1 Condition of existing doors, door frames and hardware to remain:
- 1.1.1 Determine if new hardware will fit into the existing door cut-outs. Doors which will require excessive patching to accept new hardware should not be re-used.
- 1.1.2 Doors and frames which are either in poor condition, are too thin or require excessive cutting and/or patching to accept new hardware shall be replaced with new doors and/or frames.
- 1.1.3 Verify thicknesses of the existing doors where new locksets are to be installed. Adaptor plates (increases the door's thickness) may be required to maintain the integrity of the lockset and security of the door.
- 1.1.4 Determine if construction of the existing door satisfies current standards or criteria. (e.g. Existing cafeteria doors having jalousie window lites should be replaced with new solid doors for security.)
- 1.1.5 Where existing hardware is to be retained and installed on new doors, ensure that they are in proper operating condition and are properly re-installed so that the operation of the door is not adversely affected.
- 1.1.6 Existing hardware which creates a building code violation should be removed (e.g. Existing flush bolts on paired doors with new exit devices should be removed.) Note: Where panic hardware is provided on double doors, both door leaves are required to be "active".
- 1.1.7 Field verify door and frame dimensions, and all door hardware.

Article 1 General Information

- 1.1 Drawing Reviews: Prior to Final Submittal, Consultant shall complete the elevator checklist and shall submit the drawings to the Department of Labor and Industrial Relations for review.
- 1.2 Design Requirements: Consultant shall address the following:
- 1.2.1 Ventilating the elevator or dumbwaiter shaft (hoistway) and machine room,
- 1.2.2 Provide adequate outlets and lighting for the shaft pit, machine room and any overhead machinery spaces. Locate elevator pit light switch adjacent to the ladder. Provide an outlet for telephone service in the machine room.
- 1.2.3 Corridor lighting at each elevator landing,
- 1.2.4 Means of access to the roof, and to the machine room and the overhead machinery space access door,
- 1.2.5 Provide details of the machine room door and overhead machinery space access door and how these items are closed and locked. Use metal doors and frames.
- 1.2.6 Provide a section or detail of the partition wall between the elevator or dumbwaiter shaft and the machine room,
- 1.2.7 Details of means of access to the shaft pit if the pit is over four (4) feet deep,
- 1.2.8 Details of main line disconnects. They must be either fused switches or manually reset multiple breakers and properly located.

TG Materials (Masterformat)

Division 0: Bidding and Contract Requirements

Division 1: General Requirements

Divisions 2 – 16: Technical Sections

TG Section Organization (Masterformat)

- 1. Coordination Issues
- 2. Design Issues
- 3. Drawing Notes
- 4. Standard Drawings
- 5. Specification Notes
- 6. Guide Specifications

Language

- 1 thru 5, written for Consultant
- 6 Guide Specification, written for Contractor

Guide Specification

- May not be a complete Guide Specification
- Notes, paragraphs, items as a Guide Spec
- Guidance and must be edited for Project
- Specifier's Notes (Blue colored)
- Insertions and choices (Red color)

Quality Requirements TECHNICAL GUIDE

TG 01400

1. COORDINATION ISSUES:

- 1.1 The information contained in and required by this section has serious contract implications. Ensure there are no errors in the final specification section.
- 1.2 Make sure requirements in the other technical sections are addressed and requirements coordinated with this section.
- 2. DESIGN ISSUES: (Not Used)
- 3. DRAWING NOTES:
- 3.1 Mockups: If one or more technical sections of the specification call for a mockup or if there is a general assembly mockup required for the project, retain the mockup article in attached Section 01400, and if it is a field mockup, indicate location, size, and other details of specific mockups on Drawings.
- 4. STANDARD DRAWINGS: (Not Used)
- 5. SPECIFICATION NOTES:
- 5.1 Delegated Design: The architect or engineer may decide to delegate the design of a building system or subassembly to a supplier or subcontractor to the General Contractor. Thus, this engineering work would fall under the General Contractor. Confirm requirements with the Project Coordinator.
- 5.1.1 Delegated design may be appropriate for conditions when the character of the components, such as aluminum extrusions, are known only to the manufacturer or the manufacturer of the subassembly is not known until after the Contract is signed.
- 5.1.2 Examples where delegated design might be needed are pre-cast concrete, custom skylights, curtain walls, and aluminum guardrails.
- 6. GUIDE SPECIFICATION:
- 6.1 Section 01400 Quality Requirements: Add this section for all projects.

SPECIFIER'S NOTE: Blue colored texts are Notes to the Specifier and should be completely deleted from the final text. Where [red colored italicized text in parentheses] is shown in this specification section, insert wording, numbers, etc. as appropriate and delete parentheses. Where <Red colored text in brackets > is shown, choice is indicated. Make the appropriate choice and delete the brackets. Maintain footer notation in italics with the current version used.

For multiple projects, if there is more than one DAGS Job Number for the project, include all DAGS Job Numbers in the footer. Do not include the Project Name (etc.) line in the footer. Use the following format for the specification footer.

TG01400 v03.06 Job No. [00-00-0000] [00-00-0000] Quality Requirements

Page [1]

End Footer Sample

SPECIFIER NOTES: Add Section 01400 for all projects. Edit for major projects (over \$2M) and minor projects (from \$25K to \$2M). This Section 01400 is written for minor projects (\$25K up to \$2M). For major Projects, implement the Contractor Quality Control (CQC) Program and include appropriate articles and paragraphs labeled with "CQC Program" into this section. Consult with and obtain DAGS Public Works, Quality Control Branch (QCB) approval and the appropriate requirements to use. Quality Control Branch shall approve the completed section prior to the Final design submission.

For CQC Program: Determine whether a full time QC Manager is justified or to allow the Project Superintendent to also act as the QC Manager. Consider design and complexity of the project, location of project, cost and type of Contract, amount and type of off-site fabrication and duration of project to justify expenses.

Two options for the QC Manager's duties are include. The first option allows the QC Manager to perform production related duties and the second option does not. Both options can include the use of QC Specialists responsible for performing quality control for specific areas of work, durations and frequency. Require QC Specialists when work is sufficiently complex or of a size that justifies the expense. Make sure to delete the words "QC Specialists" throughout this section when the QC Specialists is not used.

When requiring the use of a Registered Professional Engineer or Architect or a graduate Engineer or Architect for the QC Manager or QC Specialists, keep in mind the additional cost. Avoid over-specifying the expertise needed for QC personnel.

SECTION 01400 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and for Contractor's Quality Control (CQC) Program,) responsibilities and duties.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
 - Requirements of this section or by the Department or authorities having jurisdiction, do not limit the Contractor's responsibility to provide quality-control services.
- C. Related Sections include the following:
 - Section 01210 "Allowances" for testing and inspecting allowances.

SPECIFIER'S NOTE: CQC Program - Delete paragraph 1.01.D if not providing a CQC Program and Plan.

DESIGN CONSULTANT CRITERIA v03.06 TG 01400 - 1 DESIGN CONSULTANT CRITERIA v03.06 TG 01400 - 2

Flexible Pavement TECHNICAL GUIDE

TG 02740

1. COORDINATION ISSUES:

1.1 Finish wearcoat: on playcourts shall be in accordance with TG 02790 - Athletic and Recreational Surfaces.

2. DESIGN ISSUES:

- 2.1 Standards: If your project entails work in a street or highway right-of-way, ensure conformance with the following:
- 2.1.1 City streets: Ordinances and Standards of the respective County government.
- 2.1.2 State or Federal Aid highways: Standards of the State of Hawaii or the Federal Government, as applicable. Reference latest adopted edition amendment to standards.
- 2.2 Aggregate Subbase: Use aggregate subbase course only if required due to soil and grading conditions.
- 2.3 Pavement Design: Design and designate pavement section thickness (i.e. subbbase, base course and asphaltic concrete pavement) on drawings to suit wheel load and traffic conditions.
- 2.4 Tack Coat: Do not apply a tack coat to sides of concrete curb and sidewalks.

3. DRAWING NOTES:

- 3.1 Construction Tolerances for Slopes on Accessible Routes:
- 3.1.1 Include the following drawing note:
 - "Design slopes for accessible parking spaces, access aisles and accessible routes are less the maximum slopes allowed by the applicable Accessibility regulations. Slopes installed in excess of the regulation maximum will be considered defective work, and shall be corrected."
- 3.1.2 Include on the same drawing a list of the Accessibility regulation maximum slopes for accessible parking spaces, access aisles, and accessible routes.

4. STANDARD DRAWINGS:

4.1 Standard Details: If any details from the counties' STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, dated September, 1984, are to be followed, note the exact detail on drawing.

5. SPECIFICATION NOTES:

- 5.1 Specification Paragraphs: As of 03/2003, a complete Guide Specification for Asphaltic Concrete Pavement is no longer being maintained by DAGS. Utilize the following specification paragraphs and information as appropriate in the development of the Project Specifications.
- 5.2 Availability of Navy Tennis Court Mix: this mix is not available on all Islands.
- 5.3 Criteria for use of Prime Coat: The criteria for slope and pavement thickness noted is in accordance with guidance provided by the City & County of Honolulu. However, delete the prime coat if project conditions warrant it (For example, even if the criteria noted requires the use of a Prime Coat, delete its use where

adjacent classrooms will be occupied during its application. In such cases, use the Tack Coat in its place.)

6. GUIDE SPECIFICATION:

6.1 Materials (Part 2)

6.1.1 Materials for roads and parking areas, playcourts, walkways, and other foot traffic areas shall be in accordance with the appropriate Sections of the State of Hawaii Department of Transportation HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, dated 1994; and the counties' STANDARD DETAILS FOR PUBLIC WORKS, dated September 1984, as revised, except as amended in the drawings or specifications. Paragraphs concerning Measurements and Payments in the sections are not applicable. Where recycled glass is available at a cost no greater than that of the equivalent aggregate, the aggregate base course and subbase course shall contain recycled glass as specified in Section 717 of the DOT Standard Specifications.

6.2 Mixes (Part 2)

- **6.2.1** Roads and Parking Areas: Use Mix No. IV and No. V for roads and parking areas respectively. Use Mix No. V for resurfacing of existing roads and parking areas. Use Mix No. III for heavy traffic / delivery areas.
- 6.2.2 Playcourts, Walkways, and other Foot Traffic Areas: Use Mix No. V, which is coarser that the Navy Tennis Court Mix and requires a Finish Wearcoat.

6.3 Prime Coat: (Part 2)

- 6.3.1 Provide a prime coat over newly constructed base course where the longitudinal grade of the pavement is 8% or more, or where the asphaltic concrete pavement thickness is less than 4 inches.
- 6.3.2 Where a prime coat is provided, control runoff and protect adjacent work, property, utilities, waterways, and other areas against damage.

6.4 Tack Coat: (Part 2)

6.4.1 Provide a Tack Coat in lieu of a Prime Coat in situations where the impact of its objectionable odor, potential health hazards (especially with children) or the potential for the contamination of waterways in the event of runoff are likely.

END OF SECTION 02740

DESIGN CONSULTANT CRITERIA v03.04 TG 02740 - 1

DESIGN CONSULTANT CRITERIA v03.04 TG 02740 - 2

- Users Requirements
 - -Contract Conditions
 - -Design Criteria (DC)
 - -Technical Guides (TG)
 - Uniformat
 - Masterformat
 - -Generally Supercedes Standards
 - -Currently 15 listed Users

2.3.1 SecurityGate:

Provide stairway with security gate located on the <u>first floor</u>. DO NOT USE ROLL-UP GATE NOR ACCORDION GATE - USE HINGED STEEL GATE ONLY. Provide a sheet metal sign with painted letters not less than one inch high, located adjacent to the gate, stating: "THIS GATE TO REMAIN LOCKED IN THE OPEN POSITION WHENEVER THIS BUILDING IS IN USE."

2.3.2 Stair Nosings: Provide integral stair nosings on all new stairs.

- Article 1 Doors and Hardware: Due to recurring maintenance and security problems involving door hardware (on both CIP and Repair and Maintenance projects), the consultant shall address the following items in preparing the contract documents:
- 1.1 Condition of the existing doors to remain: Determine if construction of the existing door satisfies current standards or criteria. (e.g. Existing cafeteria doors having jalousie window lights should be replaced with new solid core doors for security.)
- 1.2 Frames: Hollow metal frames should be provided where the facility has a termite infestation problem such as in the Leeward and Windward School Districts.
- 1.3 Doors: Exterior doors which are directly exposed to weathering (sun and rain) and the exterior doors in Cafetoriums, Dining Rooms and Gymnasiums shall be of hollow metal construction or fiberglass reinforced polyester. (Note for Retrofit Projects: Use wood doors where building settlement and binding of the doors has been a problem.) Where doors are not subject to weathering (e.g. protected by lanai) but are located in high traffic areas (e.g. classroom doors, etc.), they shall be of solid core wood construction.
- 1.4 Hardware: For Elementary, Intermediate and High School exterior classroom doors, provision of one spare lockset (of the same function and style) for every four classrooms or fraction thereof shall be specified to be turned over to the Contracting Officer at the close of the project (to be turned over to DAGS Central Services R & M Staff).
- 1.5 Keying: Keying requirements as noted in the DOE Educational Specifications and Standards for Facilities, Appendix II shall be followed:
- 1.5.1 It is the intent of these guidelines that each building be furnished with its own master key and that all campus facilities are grand-mastered to one another.

SFCA TG 01100

- 1. COORDINATION ISSUES: (Not Used)
- 2. DESIGN ISSUES: (Not Used)
- 3. DRAWING NOTES: (Not Used)
- 4. STANDARD DRAWINGS: (Not Used)
- 5. SPECIFICATION NOTES: (Not Used)
- 6. GUIDE SPECIFICATION:
- 6.1 Section 01100 Summary
- 1.03 WORK SEQUENCE, C. Sequencing Requirements, add the following:
 - 3. Inform the State when the construction progress is ready to accept the works of art and permit its installation in the time and manner agreed upon. The completion of the construction Project and of the installation of art works shall coincide so that their final inspections can be accomplished concurrently.

- Contract Conditions
 - -10 Articles
 - -Article 1 General Conditions
 - -Article 2 Scope of Services
 - -Articles 3, 4, 5, 6 & 9 (Adopted)
 - -Articles 7, 8 & 10 (Reserved)

- **Article 1 General Conditions & Supplementary Conditions**
 - General Provisions
 - Responsibilities of the State
 - -Responsibilities of the Consultant
 - -Terms and Conditions
 - Changes and Modifications
 - Compensation and Payments

- Article 2 Scope of Services
 - Project Initiation
 - -General and Administrative Services
 - Other Services
 - Evaluation and Planning Services
 - Design Services
 - Facility Operation Services
 - Schedule of Services

- Article 3 Drawing
 - -General
 - National CAD Standard v 2.0
 - CAD and Manual
 - –Concept Drawings
 - –Schematic Drawings
 - -Design Development Drawings
 - -Construction Drawings

- Article 4 Specification
 - -General
 - -Format
 - Method of Specifying
 - -Specification Contents

- Article 4 Specification
 - -General
 - Use qualified writers (CSI Certified)
 - MS Word latest edition
 - CSI PageFormat, SectionFormat Masterformat
 - -Format
 - Specification Format Appendix 1
 - Uniform

- **Article 4 Specification**
 - -Method of Specifying
 - Open competition required
 - Performance or Descriptive preferred
 - Open Proprietary allowed (with 3 products)
 - Include performance or descriptive requirements
 - -Specification Contents
 - Guide Specifications modify for Project
 - Deviations expected identify and justify

- **Article 5 Cost Estimating**
 - -General and Objective
 - Prepared by Qualified Estimators
 - Government Estimate within + 10% of Bid
 - -Submission Requirements
 - Basis of Estimate
 - Planning
 - Schematic, Design Development, Final
 - Addenda, Bid Analysis, Contract Modifications

- Article 6 Addendum / Pre-Contract
 - -General
 - Communication During Bidding
 - No direct response, but through Coordinator
 - Addenda Schedule
 - Changes to Bidding or Contract Conditions
 - Refer to TG 00490 for sample format
 - Write performance or generic
 - Substitution if allowed Recommendations

- Article 9 Design Checklist
 - Adopted Immediately
 - Design Review Checklist
 - General, Civil, Structural, Architectural, Mechanical and Plumbing, and Electrical
 - Drawing Coordination Checklist
 - General, Civil, Structural, Architectural,
 Mechanical and Plumbing, and Electrical

Design Consultant Criteria

QUESTIONS

AD-HOC COMMITTEES

- General Conditions
- Scope of Services
- Compensation Fair Fees
- Consultant Evaluation Procedures
- Consultant Screening and Selection